

ACHIEVER TEST SERIES / JOINT PACKAGE COURSE

TARGET : PRE-MEDICAL 2025

Test Type : UNIT TEST # 03

Test Pattern : NEET (UG)

TEST DATE : 10-11-2024

ANSWER KEY

Q.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A.	3	4	1	2	1	4	2	1	2	4	1	3	3	2	1	4	3	2	4	3	2	4	1	1	3	4	2	4	2	2
Q.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
A.	2	1	1	4	1	2	2	3	2	2	2	4	3	1	4	3	2	4	2	2	4	1	3	3	1	3	4	3	2	1
Q.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
A.	2	3	2	2	2	4	1	3	1	4	4	4	1	2	1	2	4	3	2	4	2	3	4	2	2	1	3	3	2	2
Q.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
A.	2	2	2	3	3	1	2	2	2	2	4	3	2	3	3	1	1	2	2	2	4	3	3	3	4	3	1	4	4	4
Q.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
A.	3	1	3	1	1	2	3	1	3	3	2	1	4	1	3	4	4	3	4	4	3	2	3	3	2	3	1	3	2	2
Q.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
A.	2	2	3	4	4	3	2	4	1	2	3	1	4	4	1	3	2	4	4	4	2	1	1	4	4	1	4	1	1	3
Q.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200										
A.	3	2	1	2	4	4	2	1	3	2	1	1	3	4	1	2	2	2	1	3										

HINT - SHEET

SUBJECT : PHYSICS

SECTION - A

1. Ans (3)

As both wires have same volume,

$$V_1 = V_2 \Rightarrow A_1 L_1 = A_2 L_2$$

$$A L_1 = 6 A L_2 \text{ or } \frac{L_1}{L_2} = 6$$

As both wires are made of same material,

$$Y_1 = Y_2 \Rightarrow \frac{F_1 L_1}{A_1 \Delta \ell_1} = \frac{F_2 L_2}{A_2 \Delta \ell_2}$$

$$\Rightarrow F_2 = F_1 \times \frac{L_1}{L_2} \times \frac{A_2}{A_1} \times \frac{\Delta \ell_2}{\Delta \ell_1}$$

$$= F \times 6 \times \frac{6A}{A} \times \frac{2\Delta \ell}{\Delta \ell} = 72F$$

2. Ans (4)

$$W = \frac{1}{2} F \Delta \ell = \frac{1}{2} \frac{A Y}{L} (\Delta \ell)^2$$

$$W \propto \frac{A}{L} \propto \frac{r^2}{L}$$

$$\frac{W_2}{W_1} = \left(\frac{2r}{r} \right)^2 \times \left(\frac{L}{\frac{L}{2}} \right) = 8$$

$$W_2 = 8 W_1 = 16 \text{ J}$$

3. Ans (1)

Let ρ_1 and ρ_2 be the densities of two liquids.

(A) When equal volumes of two liquids mixed, then sp. gravity.

$$\rho = \frac{\rho_1 + \rho_2}{2} = \frac{7}{2} \dots\dots\dots(i)$$

(B) When equal masses of two liquids mixed, then sp. gravity.

$$\rho = \frac{2\rho_1\rho_2}{\rho_1 + \rho_2} = \frac{12}{7} \dots\dots\dots(ii)$$

Solving (i) and (ii) we get

$$\rho_1 = 1, \rho_2 = 6$$

4. **Ans (2)**

$$P_r \text{ at } \frac{4h}{5} = \frac{4}{5} \times 10^5 \text{ Pa}$$

$$= 0.8 \times 10^5 \text{ Pa}$$

5. **Ans (1)**

$$VD = V_1 \times d + V_2 \times 2d$$

$$\frac{A}{5} \times LD = \frac{A}{5} \times \frac{3L}{4} \times d + \frac{A}{5} \times \frac{L}{4} \times 2d$$

$$D = d \left\{ \frac{3}{4} + \frac{1}{2} \right\} = \frac{5d}{4}$$

6. **Ans (4)**

$$F_b = V \rho_{\text{liq}} g$$

'g' is different on moon and on the earth.

Hence only (iii) is a correct statement.

Hence (4).

7. **Ans (2)**

For laminar flow inside a pipe, its reynold's number should be low

$$Re = \frac{\rho V D}{\mu}$$

ρ = density, V = velocity, D = diameter of pipe,

μ = viscosity

For Re to be low

$$\rho \downarrow, D \downarrow, \mu \uparrow$$

8. **Ans (1)**

Statement-1 is true, statement-2 is true and statement-2 is correct explanation of statement-2.

10. **Ans (4)**

$$W = T(2\Delta A)$$

$$3 \times 10^{-4} = T \times 2 \times [20 \times 10^{-4} - 8 \times 10^{-4}]$$

$$T = \frac{1}{8} = 0.125 \text{ N/m}$$

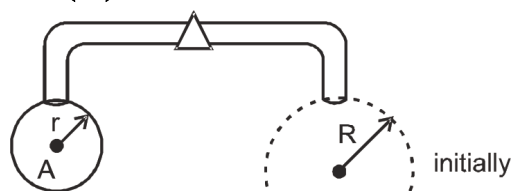
11. **Ans (1)**

Force due to S.T. on a ring, $F = T \times 4 \pi R$

$$\Rightarrow 16 = \frac{4}{\pi} \times 4 \pi R$$

$$\Rightarrow R = 1 \text{ m}$$

12. **Ans (3)**



$$P_A = P_0 + \frac{4T}{r}; P_B = P_0 + \frac{4T}{R}$$

{ P_0 = atmospheric pressure}.

Clearly $P_A > P_B$; so air will flow from A to B.

As r decreases; pressure will become more and hence more flow of air from A to B.

Ultimately bubble A collapses and B becomes bigger in size.

13. **Ans (3)**

$$h = \frac{2T \cos \theta}{rdg}$$

$$\therefore \frac{h_2}{h_1} = \frac{T_2}{T_1} \times \frac{\cos \theta_2}{\cos \theta_1} \times \frac{d_1}{d_2} \times \frac{r_1}{r_2}$$

$$\frac{h_2}{h_1} = \frac{140}{70} \times \frac{\cos 60^\circ}{\cos 0^\circ} \times \frac{1}{2} \times 1 = \frac{1}{2}$$

$$\Rightarrow h_2 = \frac{h_1}{2} = 3 \text{ cm}$$

14. **Ans (2)**

$$T_C = T(1 - \alpha t)$$

ie. surface tension decreases with increase in temperature.

15. **Ans (1)**

$$v_r = \frac{2}{9} \frac{g(\rho - \sigma)r^2}{\eta} \text{ i.e., } \eta = \frac{2}{9} \frac{g(\rho - \sigma)r^2}{v_r} \text{ So,}$$

$$\eta = \frac{2}{9} \times \frac{980 \times (8 - 1.3) \times (0.2)^2}{4} = 14.6 \text{ Poise}$$

16. **Ans (4)**

$$\text{Rate of flow } \frac{dV}{dt} = \frac{\pi P r^4}{8 \eta l}$$

$$Q = \frac{dV}{dt} \propto P r^4$$

$$\frac{Q_2}{Q_1} = \left(\frac{P_2}{P_1} \right) \left(\frac{r_2}{r_1} \right)^4 = 2 \times \left(\frac{1}{2} \right)^4 = \frac{1}{8}$$

$$Q_2 = \frac{Q}{8}$$

17. **Ans (3)**

$$\Delta L = L \alpha \Delta T$$

$$\text{slope} = \frac{\Delta L}{\Delta T} = L\alpha$$

$$(\text{Slope})_A < (\text{Slope})_B$$

$$L_A \alpha_A < L_B \alpha_B$$

$$L_A = L_B$$

$$\therefore \alpha_B > \alpha_A$$

18. **Ans (2)**

$$\frac{C - 0}{100} = \frac{5 - (-20)}{180 - (-20)}$$

$$\Rightarrow C = \frac{25}{2} = 12.5^\circ\text{C}$$

19. **Ans (4)**

As liquid does not overflow,

$$\gamma = 3\alpha$$

20. **Ans (3)**

$$\Delta P \cdot E_{\text{loss}} = \Delta Q$$

$$\Rightarrow mgh = mS_w \Delta \theta$$

$$\Rightarrow m \times 10 \times 210 = m \times 4300 \Delta \theta$$

$$\Rightarrow \Delta \theta = 0.49^\circ\text{C}$$

21. **Ans (2)**

Heat given = Heat taken

$$Pt = m_1 c_1 dT + W dT$$

$$(90)(10 \times 60) = 360(4.2)(T - 10) + 40 \times 4.2(T - 10)$$

$$T = 42.14^\circ\text{C}$$

22. **Ans (4)**

$$R_{\text{th}} = \frac{1}{K} \frac{\rho}{A}$$

$$\Rightarrow R \propto \frac{1}{K}$$

For two rods (dimensions being same)

$$\text{If } R_A = R, R_B = \frac{R}{2}$$

$$\text{In first combination } R_{\text{eq1}} = \frac{3R}{2}$$

In second combination

$$R_{\text{eq2}} = \frac{(R)(R/2)}{R + R/2}$$

$$\Rightarrow R_{\text{eq2}} = \frac{R}{3}$$

$$\text{Heat flow} \propto \frac{1}{R}$$

$$\frac{I_A}{I_B} = \frac{R_{\text{eq2}}}{R_{\text{eq1}}} = \frac{R}{3} \cdot \frac{2}{3R}$$

$$\frac{I_A}{I_B} = \frac{2}{9}$$

23. **Ans (1)**

By Theory

24. **Ans (1)**

A good absorber is also a good emitter

(Kirchoff's law of radiation)

25. **Ans (3)**

Rate of cooling

$$\frac{d\theta}{dt} \propto \frac{1}{\rho s}$$

[ρ = density, s = specific heat]

ρs maximum for D

so rate of cooling for D is minimum.

26. **Ans (4)**

If not specified which law to use we should use

newton's law of cooling as per which

$$\frac{\Delta Q}{\Delta t} = 4\sigma A \epsilon T_0^3 (T - T_0)$$

$$\Delta Q = 4\sigma A \epsilon T_0^3 (T - T_0) \Delta t$$

Clearly ΔQ depends on area (A),

temperature difference ($T - T_0$), time (Δt) and

emissivity (C) (material).

27. **Ans (2)**

$$\frac{3T - 2T}{10} = K \left[\frac{3T + 2T}{2} - T \right] \quad \dots(i)$$

$$\frac{2T - T'}{10} = K \left[\frac{2T + T'}{2} - T \right] \quad \dots(ii)$$

Equation (i)/(ii)

$$\frac{T}{2T - T'} = \frac{1.5T}{\frac{T'}{2}}$$

$$T' = 6T - 3T'$$

$$T' = \frac{3}{2}T$$

29. **Ans (2)**

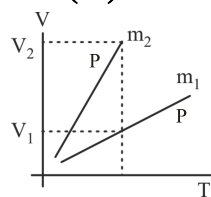
$$P = \frac{1}{3} \rho V_{\text{rms}}^2$$

$$= \frac{1}{3} \frac{M}{V} V_{\text{rms}}^2$$

$$P = \frac{1}{3} m \frac{N}{V} V_{\text{rms}}^2$$

$$P \propto m V_{\text{rms}}^2$$

31. Ans (2)



$$PV = \frac{mRT}{M_w}$$

$$V \propto mT$$

$$T\text{-fix } V \propto m$$

$$\text{Since } V_2 > V_1$$

$$\Rightarrow m_2 > m_1$$

32. Ans (1)

$$v_{\text{rms}} = \sqrt{\frac{1^2 + 2^2 + 3^2 + 4^2 + 5^2}{5}} = \sqrt{11} \text{ km/s}$$

$$v_{\text{av}} = \frac{1 + 2 + 3 + 4 + 5}{5} = 3 \text{ km/s}$$

$$\Rightarrow \frac{v_{\text{rms}}}{v_{\text{av}}} = \frac{\sqrt{11}}{3}$$

33. Ans (1)

$$\text{K.E.} = \frac{3}{2} PV$$

$$E = \frac{\text{K.E.}}{V} = \frac{3}{2} P$$

$$\Rightarrow P = \frac{2}{3} E$$

$$\text{Since for monoatomic gas } f_T = f_{\text{Total}} = 3$$

$$\text{so, (K.E.)}_T = (\text{K.E.})_{\text{Total}}$$

So A & R are correct but R is not correct explanation of A.

34. Ans (4)

$$\text{Area of cycle} = |W|$$

$$= \frac{\pi(4-3)(4-2)}{2} + \frac{\pi(2-1)(3-2.5)}{2}$$

$$= \frac{2.5\pi}{2} = \frac{5\pi}{4} \text{ atm L}$$

$$W = - \left(\frac{5\pi}{4} \right) \text{ atm L}$$

35. Ans (1)

$$P = KV$$

$$PV^{-1} = K$$

$$C = C_V + \frac{R}{1-x}$$

$$= \frac{3R}{2} + \frac{R}{2} = 2R$$

$$Q = nC\Delta T$$

$$= 1 \times 2R \times T_0$$

SECTION - B

36. Ans (2)

$$B = \frac{P}{\Delta V/V} \Rightarrow \frac{\Delta V}{V} = \frac{P}{B} = PK$$

$$\frac{\Delta V}{V} = 10^3 \times 10 \times 2700 \times 45.4 \times 10^{-11}$$

$$= 1.2 \times 10^{-2}$$

37. Ans (2)

Using Pascal's law

$$P_{\text{atm}} + \rho_{\text{oil}} g(10) = P_{\text{atm}} + \rho_w g(8)$$

$$\rho_{\text{oil}} = \frac{4}{5} = 0.8 \text{ g/cm}^3$$

38. Ans (3)

$$F_a = \frac{A_1}{A_2} \times F_2 = \frac{a}{A} \times 600g$$

$$F_b = \frac{a}{A} \times 1000g$$

$$F_c = \frac{a}{(A+A)} \times 1200g = \frac{a}{A} \times 600g$$

40. Ans (2)

$$P_1 - P_2 = \frac{1}{2} \rho v^2$$

$$0.5 \times 10^5 = \frac{1}{2} \times 10^3 v^2$$

$$v = 10 \text{ ms}^{-1}$$

41. Ans (2)

$$V_2 = \frac{4}{3} \pi r^3$$

$$V_1 = \frac{4}{3} \pi (2r)^3 = 8V_2$$

$$\text{Boyles law} \Rightarrow P_1 V_1 = P_2 V_2$$

$$P_1 (8V_2) = (P_1 + \rho gh) V_2$$

$$\Rightarrow 8P_1 = P_1 + \rho gh$$

$$\Rightarrow h = \frac{7P_1}{\rho g} \because P_1 = \rho gH$$

$$\Rightarrow h = 7H$$

42. **Ans (4)**

NCERT-XI, Pg. # 263

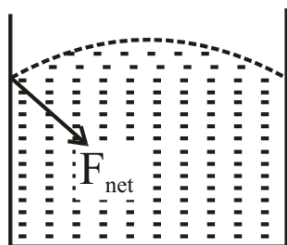
$$F_A \leftarrow F_C \sin 45^\circ = \frac{F_C}{\sqrt{2}} = \frac{2F_A}{\sqrt{2}} = \sqrt{2}F_A$$

$$F_C \cos 45^\circ = \frac{F_C}{\sqrt{2}} = \sqrt{2}F_A$$

It means resultant shape of meniscus is convex, angle of contact is obtuse, liquid will not wet glass

$$h = \frac{2T \cos \theta}{R \rho g} = \frac{2T(-ve)}{R \rho g} = -ve$$

means liquid will descend in capillary.



43. **Ans (3)**

for given mass since volume is doubled so

$$\rho = \frac{M}{V} \text{ will halved.}$$

From graph $P \propto V$

Since $PV \propto T$

$$P \propto \frac{T}{V} \Rightarrow \frac{T}{V} \propto V \Rightarrow T \propto V^2$$

T, V graph parabola

$$\frac{T_f}{T_i} = \left(\frac{2V_0}{V_0} \right)^2 = T_f = 4T_i$$

$U \propto f(T)$

$$U_f = 4U_i$$

44. **Ans (1)**

In same time, temperature fall or heat loss by body Y is more as compared to body X. Hence emissivity

$$e_Y > e_X$$

Because a good emitter, is a good absorber, so

$$A_Y > A_X$$

45. **Ans (4)**

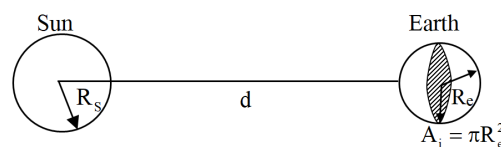
$$E = \sigma T^4$$

$$R = \sigma \left(\frac{b}{\lambda_m} \right)^4$$

$$\left(\frac{R}{\sigma} \right)^{1/4} = \frac{b}{\lambda_m}$$

$$\lambda_m = b \left(\frac{\sigma}{R} \right)^{1/4}$$

46. **Ans (3)**



$$P_s = \sigma (1) (4\pi R_s^2) T^4$$

Intensity received on earth surface

$$I = \frac{P_s}{4\pi d^2} = \sigma \left(\frac{R_s}{d} \right)^2 T^4$$

Power received on earth's effective area

$$A_i = \pi R_e^2$$

$$P_e = I (\pi R_e^2) = \sigma \left(\frac{R_s}{d} \right)^2 T^4 (\pi R_e^2)$$

47. **Ans (2)**

$$PV = \frac{mRT}{M_w}$$

V, R, M_w constant

$$P \propto mT$$

$$\frac{P_f}{P_i} = \frac{m_f}{m_i} \frac{T_f}{T_i}$$

$$\Rightarrow \frac{P_f}{20} = \frac{m/2}{m} \times \frac{(273 + 87)}{(273 + 27)}$$

$$\frac{P_f}{20} = \frac{360}{2 \times 300} = 12 \text{ atm}$$

48. **Ans (4)**

$$PT = \text{constant compare } \frac{T^n}{P^{n-1}} = \text{constant}$$

$$\Rightarrow PT^{\frac{n}{1-n}} = \text{constant}$$

$$\frac{n}{1-n} = 1 \text{ then } n = \frac{1}{2}$$

$$C_{\text{poly}} = C_V + \frac{R}{1-n}$$

$$\Rightarrow 4.5R = \frac{f}{2}R + \frac{R}{1-\frac{1}{2}}$$

$$\Rightarrow f = 5$$

49. **Ans (2)**

$$U = \frac{1}{2} \mu f R T$$

$$U_{\text{Trans}} = \frac{1}{2} \times 4 \times 3 R T = 6 R T$$

$$U_{\text{Rot}} = \frac{1}{2} \times 4 \times 2 R T = 4 R T$$

$$P.E. = 0$$

$$U_{\text{Total}} = \frac{1}{2} \times 4 \times 5 R T = 10 R T$$

50. **Ans (2)**

For cyclic process $\Delta U = 0$

$$\Rightarrow \sum Q = \sum W$$

$$\Rightarrow 1000 = 300 + x \Rightarrow x = 700 \text{ J}$$

$$\text{Heat absorbed} = 6000 + 3500 = 9500 \text{ J}$$

$$W = 1000 \text{ J}$$

$$\eta\% = \frac{1000}{9500} \times 100 = 10.5\%$$

SUBJECT : CHEMISTRY

SECTION - A

51. **Ans (4)**

$$\Delta_i H : \text{Li} < \text{B} < \text{Be} < \text{C}$$

52. **Ans (1)**

(1) 111 $\rightarrow$ Roentgenium

(2) 107 $\rightarrow$ Bohrium

(3) 103 $\rightarrow$ Lawrencium

(4) 112 $\rightarrow$ Copernicium

53. **Ans (3)**

He - $1s^2$ (not shown $ns^2 np^6$)

54. **Ans (3)**

NCERT XI Part -I Page No. # 91.

55. **Ans (1)**

NCERT Pg. No. # 15

56. **Ans (3)**

NCERT Pg. No. # 21

57. **Ans (4)**

NCERT Pg # 82 - 84

58. **Ans (3)**

NCERT Pg # 81

59. **Ans (2)**

NCERT Pg # 89

60. **Ans (1)**

As per z_{eff}

$$A.R. \propto \frac{1}{z_{\text{eff}}} \propto \frac{-\text{ve charge}}{+\text{ve charge}}$$

61. **Ans (2)**

In Reversible Isothermal process,

$$W = -2.303 n R T \log_{10} \left(\frac{P_1}{P_2} \right)$$

$$= -2.303 \times 1 \times 2 \times 298 \log_{10} \left(\frac{20}{10} \right)$$

$$= -413.14 \text{ calories}$$

62. **Ans (3)**

(A) When liquid evaporates to vapour, randomness increases hence entropy increases.

(B) Temperature decreases $\Rightarrow$ entropy decreases

$$(C) \Delta n_g = 2 - 0 = 2$$

$$\Delta n_g = +\text{ve} \rightarrow \Delta S = +\text{ve}$$

$\Rightarrow$ entropy increases

$$(D) \Delta n_g = 2 - 1 = 1$$

$$\Delta n_g = +\text{ve} \rightarrow \Delta S = +\text{ve}$$

$\Rightarrow$ entropy increases

(A), (C), (D) are correct.

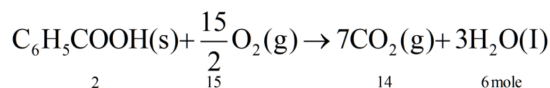
63. **Ans (2)**

(A)	Adiabatic process	$\Rightarrow$	No transfer of heat between system and surroundings (III)
(B)	Reversible process	$\Rightarrow$	Both way process reactant to product and vice-versa (II)
(C)	Intensive property	$\Rightarrow$	Independent of amount of substance (I)
(D)	Extensive property	$\Rightarrow$	Dependent on amount of substance (IV)

64. **Ans (2)**

NCERT Exemplar-XI, Pg # 68, 71

65. **Ans (2)**



$$(\Delta n)_g = 14 - 15 \Rightarrow = -1$$

$$\Delta H = \Delta U - (\Delta n)_g RT$$

$$\Delta H - \Delta U = -1 \times 8.314 \times 300 = -2494 \text{ J}$$

66. **Ans (4)**

Theory based

67. **Ans (1)**

$$\Delta S = \frac{\Delta H}{T}$$

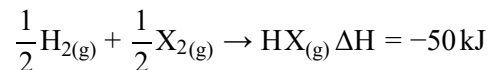
$$= \frac{1000 \times 18}{373} = 48.25$$

68. **Ans (3)**

NCERT-XI, Pg. # 170, 171, 172, 173, Part-1

69. **Ans (1)**

NCERT-XI, Pg. # 172



$$\Delta H = \Sigma(\text{B. E.})_{\text{Reactants}} - \Sigma(\text{B. E.})_{\text{Products}}$$

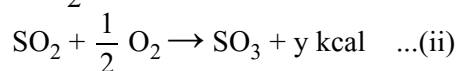
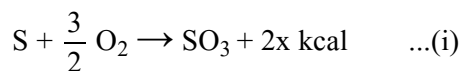
70. **Ans (4)**



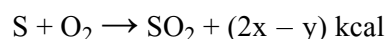
1 mole = 44 g $\rightarrow$ 390 kJ released

$$\text{For } 35 \text{ g} \rightarrow \frac{390}{44} \times 35 = 310 \text{ kJ}$$

71. **Ans (4)**



Now, subtract eq. (ii) from (i), we get,



$\therefore$ Heat of formation of SO_2 is equal to

$$-(2x - y) \text{ kcal.}$$

72. **Ans (4)**

Fact

73. **Ans (1)**

$$\Delta G = \Delta H - T\Delta S$$

$$\Delta H = \Delta G + T\Delta S$$

$$= 20000 + 200 \times (-20)$$

$$= 16000 \text{ J/mol}$$

Using Kirchoff's equation,

$$\Delta H_2 - \Delta H_1 = \Delta C_p (T_2 - T_1)$$

$$\Delta H_2 = \Delta H_1 + \Delta C_p (T_2 - T_1)$$

$$= 16000 + 20 (400 - 200)$$

$$= 20000 \text{ J/mol}$$

$$= 20 \text{ kJ/mol.}$$

74. **Ans (2)**

Production of hydrogen by electrolysis of water is not an example of corrosion.

75. **Ans (1)**

$$\kappa = \frac{1}{\rho} = \frac{1}{R} \left(\frac{\ell}{A} \right) = \frac{1}{50} \times \frac{2.1}{4.2} = \frac{1}{100} \quad \text{and}$$

$$\Lambda_{\text{eq.}} = \frac{\kappa \times 1000}{N} = \frac{1}{100} \times \frac{1000}{1}$$

$$= 10 \text{ ohm}^{-1} \text{ cm}^2 \text{ eq}^{-1}$$

76. **Ans (2)**

$$W = \frac{E_{\text{it}}}{96487}$$

$$W = \frac{\frac{63}{2} \times 9.6487 \times 100}{96487}$$

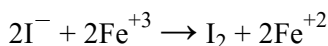
$$W = 0.315 \text{ g of Cu}$$

77. **Ans (4)**

This equation is valid for strong electrolytes.

78. **Ans (3)**

Feasible cell reaction is



$$E^\circ_{\text{cell}} = (\text{SRP})_{\text{Cathode}} - (\text{SRP})_{\text{Anode}}$$

79. **Ans (2)**

$$E = E^\circ - \frac{0.06}{n} \log Q$$

80. **Ans (4)**

$$\Lambda_m \propto \text{dilution} \propto \frac{1}{\text{Conc.}}$$

81. **Ans (2)**

NCERT XII, Part-I Pg # 74 (Edition, 2017)

82. **Ans (3)**

NCERT (2017), Pg. # 85, Part-I

83. **Ans (4)**
NCERT (2017), Pg. # 82, Part-I
84. **Ans (2)**
NCERT (2017), Pg. # 72, Part-I
85. **Ans (2)**
NCERT-XII, Pg. # 66, 72, Part-I

SECTION - B

86. **Ans (1)**
Mg, P have high IE due to stable electronic configuration.
87. **Ans (3)**
 $\text{Cr} > \text{Mn} > \text{V} > \text{Ti}$
88. **Ans (3)**
Transition metal are present in 3 to 11 group.
89. **Ans (2)**
NCERT Pg # 86
90. **Ans (2)**
NCERT Page No. # 77
91. **Ans (2)**
NCERT-XI, Pg. # 179, Part-I
 $\Delta G^\circ = \Delta H^\circ - T\Delta S^\circ = -2.303 RT \log K$
 $\Delta G^\circ = 50 \times 10^3 - 300 \times 20$
 $= -2.303 \times 8.314 \times 300 \log K$
 $\log K = -7.65$
 On taking antilog
 $K = 2.2 \times 10^{-8}$
92. **Ans (2)**
NCERT Pg.# 181 (2019)
 $\Delta S_{\text{sys}} = nR \ln \frac{V_2}{V_1}$
 $\Delta S_{\text{sys}} + \Delta S_{\text{surr.}} = 0$
93. **Ans (2)**
For 1 mole HCl and NaOH; Heat = -57.3 kJ

 For 0.25 mole; Heat = -57.3×0.25
 $= -14.32 \text{ kJ}$
 (Unit should not be kJ mol^{-1})

94. **Ans (3)**
NCERT-XI, Pg # 173, Part-I
95. **Ans (3)**
 $\text{eq. (iii)} = \text{eq (i)} - 2 \times \text{eq (ii)}$
 $\Delta H_3 = \Delta H_1 - 2 \times \Delta H_2$
96. **Ans (1)**
 $\text{Zn}|\text{Zn}^{2+}(\text{aq})||\text{Fe}^{2+}(\text{aq})|\text{Fe} \quad E_{\text{cell}}^0 = 0.32 \text{ V}$
 $\Delta G^\circ = -nF E_{\text{cell}}^0$
 $\Delta G^\circ = -2 \times 96487 \times 0.32 \text{ J}$
 $\Delta G^\circ = -61.75 \text{ kJ/mol}$
97. **Ans (2)**
For n eq. of substance deposited/converted, nF charge is required.
98. **Ans (2)**
Reducing power $\propto \frac{1}{\text{SRP}}$
99. **Ans (2)**
 $10^{\left(\frac{n \times E_{\text{cell}}^0}{0.06}\right)} = 10^6$
 $\Rightarrow \frac{n \times E_{\text{cell}}^0}{0.06} = 6$
 $\Rightarrow E_{\text{cell}}^0 = \frac{6 \times 0.06}{2} = 0.18 \text{ V}$
100. **Ans (2)**
 $E_{\text{cell}} = \frac{0 - 0.0591}{2} \log \left(\frac{[10^{-1}]^2}{[1]^2} \right)$
 $E_{\text{cell}} = 0.0591 \text{ V}$

SUBJECT : BOTANY

SECTION - A

101. **Ans (4)**
NCERT XI Pg # 17, II Para
102. **Ans (3)**
NCERT XI Pg # 25
103. **Ans (2)**
NCERT (XI)(E) Page. # 18,19; Para. - 2.1
104. **Ans (3)**
NCERT-Page # 21

105. **Ans (3)**
NCERT (XIth) Pg. # 20,21
106. **Ans (1)**
NCERT-XI Pg. # 20, 21
107. **Ans (1)**
NCERT XI Pg # 17
108. **Ans (2)**
NCERT (XI) Pg # 24
109. **Ans (2)**
NCERT XIth Page no. # 23, 24
110. **Ans (2)**
NCERT-Page # 23
111. **Ans (4)**
NCERT XI Page No. # 17
112. **Ans (3)**
NCERT (XI) Pg # 27
113. **Ans (3)**
NCERT XIth Pg. # 26
114. **Ans (3)**
NCERT XI Pg.# 20
115. **Ans (4)**
NCERT XI Pg. # 14,15,16
116. **Ans (3)**
NCERT (XI) Pg. # 22
117. **Ans (1)**
NCERT-XI, Pg # 20/21
118. **Ans (4)**
NCERT-XI, Pg # 21
119. **Ans (4)**
NCERT (XI) Pg. # 128,129, para-02,04
120. **Ans (4)**
NCERT XI Pg # 19, 26
121. **Ans (3)**
NCERT (XIth) Pg. # 32
122. **Ans (1)**
NCERT XI Pg # 27

123. **Ans (3)**
Mixed (Miscellaneous)
124. **Ans (1)**
NCERT (XIth) Pg. # 38
125. **Ans (1)**
NCERT XI, # 36
126. **Ans (2)**
NCERT-XI, Pg. # 36
127. **Ans (3)**
NCERT-XI, Pg#38
128. **Ans (1)**
NCERT Pg. # 33,32, Figure : 3.4(c)
129. **Ans (3)**
NCERT (XI) Pg. # 26, 27
130. **Ans (3)**
NCERT Pg : 42, 2021 - 22
131. **Ans (2)**
NCERT Pg# 38
132. **Ans (1)**
NCERT-XI, Pg. # 26
133. **Ans (4)**
NCERT Pg # 39
134. **Ans (1)**
NCERT Pg. # 33
135. **Ans (3)**
NCERT- Pg. # 36

SECTION - B

136. **Ans (4)**
NCERT XI Pg. # 20
137. **Ans (4)**
NCERT XI Pg # 32
138. **Ans (3)**
NCERT Pg. # 36
139. **Ans (4)**
NCERT-XI, Pg.# 30

140. **Ans (4)**
NCERT-XI, Pg. # 35
141. **Ans (3)**
Old NCERT XIth Pg # 4, 5
142. **Ans (2)**
NCERT Pg # 16, 17, 18
143. **Ans (3)**
NCERT Pg. # 17, 18
144. **Ans (3)**
NCERT Pg. # 26, 27
145. **Ans (2)**
NCERT Pg # 19, 20
146. **Ans (3)**
NCERT Pg # 26, 28, 30, 32
147. **Ans (1)**
NCERT Pg # 32
148. **Ans (3)**
NCERT Pg # 30, 32
149. **Ans (2)**
NCERT Pg # 13
150. **Ans (2)**
NCERT Pg # 26, 27, 29, 30, 33

SUBJECT : ZOOLOGY

SECTION - A

151. **Ans (2)**
NCERT XII, Pg. No.125
152. **Ans (2)**
Genetic drift change gene frequency.
155. **Ans (4)**
NCERT Pg. # 112
156. **Ans (3)**
NCERT, Pg. # 111, 122
158. **Ans (4)**
NCERT Pg # 124
Dryopithecus was more ape like and
Ramapithecus was more man like

160. **Ans (2)**
NCERT Pg. # 112, 113, 114
163. **Ans (4)**
NCERT, Pg # 49,50
164. **Ans (4)**
NCERT Pg. # 47, 49, 50, 51
165. **Ans (1)**
NCERT Pg.#108
166. **Ans (3)**
NCERT Pg. # 57
174. **Ans (4)**
NCERT-XII Pg. # 117
176. **Ans (1)**
NCERT Page No. # 53
Hint external ear pinna present only in mammals.
177. **Ans (4)**
NCERT Page No. # 49.
Snake used lizard remove their scale as skincast.
178. **Ans (1)**
NECART Page No. # 45
Given properties are of Echinoderms.
179. **Ans (1)**
NCERT Page No. # 44,
feather like gills present in mothusea.
180. **Ans (3)**
NCERT Page No. # 41,
Corals are coelenterate with CaCO₃ skeleton.
181. **Ans (3)**
NCERT P.No. 123
First amphibian evolved from coelacanth (Lobefins)
182. **Ans (2)**
NCERT-Pg. no. 124
Fossils of man like bone discovered in Kthopio and Tanzania. These reveals hominid features.

183. **Ans (1)**
NCERT- Pg. No.124

184. **Ans (2)**
NCERT Pg. No. 115

185. **Ans (4)**
NCERT- Pg.no. 119

SECTION - B

188. **Ans (1)**
NCERT-XII, Pg. # 124

189. **Ans (3)**
NCERT XII, Page # 115

191. **Ans (1)**
NCERT Pg. # 48

192. **Ans (1)**
NCERT Pg.#47,48

193. **Ans (3)**
Arthropoda is largest phylum.

196. **Ans (2)**
NCERT Page No. # 48
Saccoglossus is nonchordate.

197. **Ans (2)**
NCERT Page No. # 39,
Mesoderm in form of pouch present in
Pseudocoelomate.

198. **Ans (2)**
NCERT- P.No.113
Embryological support for evolution Proposed
by Ernst Haeckel.

199. **Ans (1)**
NCERT- P.no. 118
Bobcat is placental mammal.

200. **Ans (3)**
NCERT- Pg.No. 111, 118, 119
Work of Thomas Malthus on population
influenced Darwin.